Developing a Sustainability Impact Assessment Framework for Local Urban Planning

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In order to meet the land use and infrastructure needs of the community with the additional challenges posed by climate change and a global recession, it is essential that Queensland local governments test their proposed integrated land use and infrastructure plans to ensure the maximum achievement of triple-bottom line sustainability goals. Extensive regulatory impact assessment systems are in place at the Australian and state government levels to substantiate and test policy and legislative proposals, however no such requirement has been extended to the local government level. This paper contends that with the devolution of responsibility to local government and growing impacts of local government planning and development assessment activities, impact assessment of regulatory planning instruments is appropriate and overdue. This is particularly so in the Queensland context where local governments manage metropolitan and regional scale responsibilities and their planning schemes under the *Sustainable Planning Act 2009* integrate land use and infrastructure planning to direct development rights, the spatial allocation of land, and infrastructure investment. It is critical that urban planners have access to fit-for-purpose impact assessment frameworks which support this challenging task and address the important relationship between local planning and sustainable urban development. This paper uses two examples of sustainability impact assessment and a case study from the Queensland local urban planning context to build an argument and potential starting point for impact assessment in local planning processes.

Key Words: regulatory impact assessment, sustainability impact assessment, local urban planning, integrated land use and infrastructure

1. INTRODUCTION

This paper asserts that well designed, integrated land use and infrastructure planning instruments which consider the immediate but also long-term economic, social and environment impacts are a key component of achieving sustainable urban development and a resilient community. It is not enough for the planning scheme to just articulate the community's sustainability goals but must also actively pursue those goals through intelligently designed spatial land use and infrastructure strategies and provisions that will facilitate those outcomes. Local government planners must be able to undertake impact assessment to test their proposed strategies and spatial allocation options during the drafting process, in addition to monitoring and evaluation mechanisms after implementation, and need to access fit-for-purpose guidelines to undertake this challenging task.

Impact assessment as it relates to the development of legislation and to the field of regulatory reform is not new. Being first developed in the United States in the 1970s, impact assessment is a governmental practice that has expanded well beyond its original economic focus [1)]. This form of impact assessment, also called regulatory impact analysis or assessment (RIA), is defined in the Organisation for Economic Co-operation and Development (OECD) framework as a "process of systematically identifying and assessing the expected effects of regulatory proposals" [2)]. In 2012, the OECD identified that 33 out of its 35 member countries have adopted a national RIA system [3)]. Quality RIA is acknowledged to be "administratively and technically challenging" but is considered to be an "important element of an evidenced-based approach to policy making" and "can underpin the capacity of governments to ensure that regulations are efficient and effective in a changing and complex world" [3)].

The Australian Commonwealth Government's RIA system requires 'regulatory impact statements' to substantiate policy instruments and taxation measure proposals [4]. The Australian system is considered by the OECD as a "front-runner" in quality for a number of reasons including its: 1) continuous development since inception in 1985, 2) consultation requirements, and 3) triple-bottom line approach which has been in place since the 1992 Council of Australian Governments agreement on the *National Strategy for Ecologically Sustainable Development* (NSESD) [5]. RIA systems have also been established at the Australian state government level such as the Queensland regulatory assessment system which is implemented through the Office of Best Practice Regulation under the Queensland Competition Authority [6].

However despite the implementation of RIA at the national and state levels, it has not been extended to the local government level [7]. This is noteworthy considering that state governments have increasingly devolved responsibility to the local government level and local regulation can have significant impacts [7][8]. Local government land use planning and development assessment activities are a strong and topical case in point, with a recent review carried out by the Australian Government Productivity Commission to identify potential areas of improvement (e.g. increasing the transparency, effectiveness and efficiency of decision making, reducing compliance burdens) [8]. This paper contends that RIA during the preparation of local government planning instruments is appropriate and could contribute to improved regulatory and implementation outcomes.

RIA for local government planning instruments is argued to be particularly relevant in the Queensland context where local government jurisdictions assume metropolitan or regional scale responsibilities. For example, the Brisbane City Council controls the largest local government area in Australia and manages an annual budget of over $3 billion [9]. When applied on this scale with the powers under the Queensland *Sustainable Planning Act 2009* planning schemes become influential integrated land use and infrastructure planning instruments that direct development rights, the spatial allocation of land and billion dollar infrastructure investment decisions by government and the private sector. Yet despite their influence, no impact assessment is specified for Queensland planning schemes and Queensland is not alone. A desk-top review of other Australian state requirements for the preparation of local government planning instruments found only one example in the Victorian planning system which is discussed further in this paper.

This paper contends that quality RIA should incorporate triple-bottom line sustainability considerations. It is clear from the scope of RIA systems discussed above that where they are in place, they are increasingly incorporating triple-bottom line approaches. This is not surprising given that, internationally, governmental decision making practice has been influenced by the international sustainability movement [10]. The 1992 United Nations Conference on Environment and Development (UNCED) at Rio de Janeiro gave birth to influential international instruments including the *Agenda 21* and the *Rio Declaration on Environment and Development* which form a guideline and principles for the implementation of sustainable development (SD) at a local and national level [11]. The intention was to incorporate environmental protection as an integral part of the development process (Principle 4) and within government decision-making through impact assessment (Principle 17).

Interestingly, governments have not automatically included SD as an overarching principle in their impact assessment frameworks [5]. Some OECD members, such as Australia, have incorporated sustainability aspects into their RIA systems, while others have developed separate assessment procedures for impacts on SD, and there are advantages and disadvantages to both approaches [5]. There are also different opinions in the literature as to which of these approaches qualify to be called a sustainability impact assessment (SIA) but for the purposes of this paper both will be considered [5][12]. Therefore for the purposes of this paper, SIA is defined as an ex-ante or forward looking regulatory impact assessment which assesses economic, social and environmental impacts with a SD perspective (e.g. impacts on future generations) [10]. The literature identifies that while there are additional challenges to incorporating SD considerations into an already challenging RIA framework, this practice can improve the overall quality of legislation and support the achievement of sustainability goals [5][13].

The aim of this paper is to build a case for SIA in Queensland local government planning processes and to provide relevant examples to explore their potential benefits and challenges. The paper introduces the Queensland planning context and local government case study and looks at how the concept of SD is evident in this system. The paper then presents an overview of SIA and two SIA examples, one from Europe and Australia, are discussed and compared. It is argued that these two examples could be readily adapted to the Queensland context or present an excellent starting point for the development of a Queensland specific SIA framework.

2. PLANNING CONTEXT AND CASE STUDY

(2.1) Queensland Planning System

For a sizeable proportion of the 1990's and 2000's population growth in South-East Queensland (SEQ) encouraged rapid infill and greenfield development and created significant demand on infrastructure networks [14]. Issues such as land supply, housing affordability, road congestion and environmental concerns were consistently in the media spotlight and the subject of political, academic and professional debate [14]. The era was characterised by local and state government programs of growth management and strategic land use and infrastructure planning as well as rapid prioritisation and record spending on major infrastructure projects (e.g. $9 billion SEQ water grid) [15].

a) State planning legislation

This era also saw the introduction of statutory integrated land use and infrastructure planning under the *Integrated Planning Act 1997* (IPA) which has become the *Sustainable Planning Act 2009* (SPA). The IPA and the SPA were influenced by trends such as the expanding role of local government, public sector reform and, the central theme of this paper, SD [16]. As stated in the introduction, the UNCED SD framework has dominated environmental and social science literature and influenced global, national and local policies [17][18]. Sustainability is now a contemporary urban governance goal and it has become conventional planning wisdom for all three levels of government in Australia to be committed to environmentally sustainable urban development [18]. While the SPA ecological sustainability concept is acknowledged to be a variant on the SD concept, it is faithful to the basic principles of integrated decision-making, conservation of biological diversity and ecological integrity, intergenerational equity and the precautionary principles [16]. The stated purpose of the SPA is to achieve ecological sustainability which is defined as a balance that integrates (SPA section 8(a)-(c)):

- protection of ecological processes and natural systems at local, regional, State and wider levels;
- economic development;
- maintenance of the cultural economic, physical and social wellbeing of people and communities.

Ecological sustainability is to be achieved by (SPA section 3(a)-(c)):

- managing the development assessment process to ensure it is accountable, effective and efficient and delivers sustainable outcomes;
- managing the effects of development on the environment, including managing the use of premises;
- continuing the coordination and integration of planning at the local, regional and State levels.

Regulatory improvement is the second theme of the paper and while a complimentary goal to SD it is a challenging balancing technically and politically. The SPA was shaped by the regulatory reform outcomes from the global financial crisis which is evident in the SPA Explanatory Notes which states "outcomes to be achieved by the Bill are a significantly improved and streamlined land use planning and development framework and systems that reduce costs and get development on the ground sooner" [19]. While the legislation may be considered as leaning towards efficient plan making and development assessment processes, it is quite clear that the drafters also envisaged sustainability as a desired community end state. This is demonstrated by the inclusion of sustainability in the legislation's purpose as discussed above, but also in the provisions for state, regional and local level plan making (e.g. SPA section 28 Key Elements of Regional Plan) and for the Integrated Development Assessment System (e.g. SPA section 689 Environmental Impact Statement Process).

b) Local government plan making

Sustainability considerations are evident in SPA provisions for plan making by local governments (SPA sections 88 & 89). This has been assisted by the recent development of the Queensland Planning Provisions (QPP) which provides a mandatory template for planning schemes and establishes a clear strategic hierarchy from which an SIA framework could be designed. The QPP requires a local government to prepare a Strategic Framework which sets the policy direction for the scheme and outlines the strategic intent and social, economic and environmental themes (e.g. from the relevant regional plan). The strategic themes are refined into strategic outcomes and elements and are linked to specific outcomes and land use strategies [20]. However no guidelines have been provided on how to develop, analyse and select appropriate and influential land use strategies that will facilitate the strategic themes and identify potential positive or negative impacts to the community, industry or Council itself.

A second example of the pursuit of SD is through the provision for integrated land use and infrastructure planning. Infrastructure is defined as land, facilities, services and works used for supporting economic activity and meeting environment needs (SPA Schedule 3 Dictionary). Land use and infrastructure are core matters to be integrated into local government planning schemes (SPA section 89). The planning scheme must include a priority infrastructure plan (PIP) which outlines the extent and location of proposed infrastructure after having

regard to forecasted growth and development and capacity of existing infrastructure networks (SPA sections 88 & 89). The PIP framework seeks to (SPA section 625):

- integrate state and local land use and infrastructure plans,
- establish an infrastructure planning benchmark as a basis for an infrastructure funding framework,
- establish an infrastructure funding framework that is equitable and accountable.

Therefore the expectation is that local government plan making which leads to an amendment of the planning scheme will integrate land use and infrastructure planning and pursue sustainable development as a key outcome. However the only mandatory assessment of scheme amendments is a compliance-based State interest review prior to public notification. The review does not include an impact assessment nor does it require a self-assessment of impacts to be submitted by the local government. So while the SPA planning process provides the scope for such an assessment it is not required in a mandatory or voluntary sense.

(2.2) Local government case study

Queensland local governments, such as the Brisbane City Council (BCC), undertake a broad range of land use and infrastructure planning as identified in Figure 1. The paper's focus is local area or neighbourhood planning which is undertaken for a geographical area commonly the size of a Queensland gazetted locality or suburb [21]. The neighbourhood plans form part of the planning scheme and are subject to the scheme's strategic framework. It is reasonable to expect that the neighbourhood plans and their development process will be characterised by the concepts discussed above.

Fig.1 Brisbane City Council Planning Framework [22]

A desktop review of three recently adopted BCC neighbourhood plans identified that the integration of land use and infrastructure is undertaken and that consideration is given to future social, economic and environmental outcomes for the local area. The City Centre Neighbourhood Plan (2009), the Fortitude Valley Neighbourhood Plan (2010), and the Indooroopilly Centre Neighbourhood Plan (2012) incorporate triple-bottom line sustainability considerations in their development principles section and more detailed provisions (e.g. infrastructure planning) in the neighbourhood code [23]. A qualification should be made at this point, that this level of detail will not necessarily be found in all neighbourhood plans as these three plans have been drafted for significant areas of the city and region (e.g. SEQ regional activity centres). The sustainability considerations in these neighbourhood plans are considered consistent with the SPA and the scheme's strategic framework.

A textual analysis of the publically available material on the BCC neighbourhood planning process is also supportive of the SPA purpose and approach and a diagram of the process is provided in Appendix 1. For example, the BCC factsheet *Frequently Asked Questions about Neighbourhood Planning: Infrastructure* demonstrates a commitment to integrated land use and infrastructure planning [24]. Similarly, the Urban Renewal Brisbane 20 Year Celebrations includes terminology such as "practical understanding of the marketplace and commitment to investing in key infrastructure", "vibrant high-density, mixed-use developments",

and "specified environmentally sustainable urban design standards" [25]. The report also identifies the positive social, environmental and economic outcomes of the program stating that the Fortitude Valley's workforce has increased by 70 per cent since urban renewal began in 1991 [25].

It could be argued that the language of sustainability is easy to draft into planning instruments, but it is a different matter again for planners to demonstrate that their plans will achieve triple-bottom line sustainable outcomes on the ground. The three neighbourhood plans discussed above have now been adopted and can be monitored and evaluated against what is currently occurring in their development footprints but it could be argued that implementation is too late, particularly if a plan is not producing desired outcomes or it is producing unintended negative impacts. The following section looks at two SIA frameworks and what they identify as the social, economic and environmental impacts of planning and policy instruments. These frameworks advocate that proposed regulatory instruments can be assessed in an ex-ante or forward looking manner and impact assessment does not have to wait until instruments are implemented. The neighbourhood planning process affords the opportunity to implement an SIA, so what framework would suit this particular context or does a new SIA need to be developed? The next section explores these questions further.

3. SUSTAINABILITY IMPACT ASSESSMENT

This section introduces the umbrella concept of impact assessment, two key traditions of impact assessment as applied to urban planning, and specific examples of SIA which could be applied to the case study.

(3.1) What is impact assessment?

In a general sense, impact assessment is the process of identifying the future consequences of a current or proposed action and therefore the 'impact' is the difference between what would happen with the action and what would happen without it [26]. A large body of literature on impact assessment exists internationally arising from the very different fields of regulatory reform, environmental management, economics, social sciences, and business and knowledge management. Hugé and Waas summarise literature and goals common to an impact assessment exercise [27]:

- To provide information for decision-making by analysing the (unintended) consequences of proposed actions;
- To promote transparency and participation of the public in decision-making;
- To identify alternative options and/or to design mitigating measures so as to avoid/minimise unintended harmful impacts as well as to foster positive impacts.

Impact assessments can be classified according to their "temporal focus" (e.g. ex-post or backwards looking, continuous monitoring, or ex-ante/predictive) as well as their "object of focus" (e.g. project-level or strategic-level assessment) [10]. Another classification is that assessment can be goal-oriented (e.g. what is the contribution of the plan to its overarching legislation or policy's goals) or outcome-oriented to identify the potential positive and negative impacts with optimisation and minimisation measures [10]. This paper is concerned with ex-ante, strategic-level impact assessments that assess a planning scheme's potential contribution to relevant sustainability goals but also its potential impacts.

While discussing impact assessment a note needs to be made acknowledging the importance of environmental impact assessment (EIA). While not the subject of this paper, EIA is oldest and most commonly used environmental impact assessment tool [28]. In the Australian context, EIA are required for activities such as development applications which can impact on matters of national environmental significance (e.g. world or national heritage places, protect migratory species) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and prescribed matters under State environmental legislation.

(3.2) More than an alphabet soup of acronyms?

a) Regulatory impact assessment

RIA is a well-established practice internationally and was first developed in the United States in the 1970s, with a primary focus on economic analysis [1]. RIA is defined in the OECD framework as a "process of systematically identifying and assessing the expected effects of regulatory proposals" [2]. As highlighted in the introduction the majority of OECD countries have adopted an RIA framework and this is the strength of RIA for the case study, its specific development for a governance framework and its long standing application in regulatory improvement processes. As identified by Jacobs [29] the RIA framework is proven to facilitate positive outcomes:

- Asking and answering the right questions in a structured framework which leads to transparent

policy-making;
- Systematically analysing the potential impacts of public policy;
- Communicating information to policy-makers and stakeholders.

Another strength of the RIA framework is that it has a proven ability to incorporate a triple-bottom line approach [5)]. The development of the Australia RIA system, reflecting the international experience, gradually expanded to include social and environmental considerations along with the original economic focus. The Australian RIA system requires regulatory impact statements to substantiate policy instruments and taxation measure proposals [4)]. It is considered a "front-runner" in quality and has incorporated a triple-bottom line approach since the NSESD was signed in 1992 [5)]. RIA systems have also been established at the State Government level and have therefore been applied to the development of planning legislation which is predominantly created at the State level. The gap in practice, as discussed in the previous sections, is that RIA has not yet been extended to the local government level and therefore planning schemes as a regulatory instrument have been exempt [7)].

b) Strategic environmental assessment

The second key tradition of impact assessment which must be acknowledged when focusing on sustainability is from the field of environmental management. Environmental measurement has developed from the early 1900s land and resource survey and evaluation techniques into contemporary sophisticated environmental and sustainability assessment, measuring and reporting systems (e.g. state of the environment reports) [28)]. As noted in previous sections, the influential UNCED framework has influenced government practice including the adoption of EIA at a project level and strategic environmental assessments (SEA) for policies and plans [26)].

The EIA/SEA are now considered integrated impact assessments, which developed from the recognition that social and economic factors should be incorporated along with an improved understanding of how the three dimensions interact [10)]. However even with these improvements in the EIA/SEA, new concepts have been developed including sustainability assessment, 3-E Impact Assessment and Extended Impact Assessment [30)]. While some consider these developments no more than a confusing "alphabet soup of acronyms" [31)] others identify the prioritisation of UNCED sustainable development concepts in sustainability assessment as the next generation of environmental assessment [27)]. Sustainability assessments are differentiated in that, in addition to the triple-bottom line, there is consideration given to the SD principles (e.g. global equity concerns, intergenerational equity) [12)10)]. The OECD identifies that while it is an additional level of challenge to incorporate SD considerations into the already challenging impact assessment task, this practice can improve the overall quality of legislation and support the achievement of sustainability goals [5)].

In the Australian context the EPBCA allows for a voluntary SEA process for assessing the potential impacts of policy and plans on environmentally significant areas and matters. Similar in nature is the Queensland SEA where it is incorporated in the SPA plan making process for only three local government areas (e.g. Cairns) to protect places of iconic value. Therefore SEA remains limited in application to urban planning and it is still being implemented with varying levels of success [32)]. SEA implementation has been a challenge internationally, for example, in Plan EIA as SEA is known in China [33)].

(3.3) A merger for improved sustainability assessment?

Both the RIA and SEA frameworks offer strengths and weaknesses to apply to the case study. The RIA offers a more developed and tested methodology and its strength lies in its application to a public policy context. The SEA offers the strength in connecting local urban planning with the SD goal. This paper follows a developing discourse which allows RIA that address SD to be classified as an SIA [5)10)27)]. Early work at bridging the two traditions has been undertaken in the European context [27)] and the European Commission Impact Assessment framework is discussed in section 3.5. An analysis of scientific and policy documents concerning SD and impact assessment in the European Union and the sub-national level of the Flemish Region of Belgium identified potential elements of convergence between RIA and SEA including common objectives and that they share a logical approach and process to decision-support [27)]. This is not surprising given they are both impact assessments to begin with, and interestingly an RIA can be more sustainability-oriented than an SEA if the latter is used to justify decisions biased towards economic outcomes [27)].

(3.4) Victorian SIA (Australia)

A desk-top review was undertaken of Australian state planning systems and their requirements for the preparation of local government planning instruments. The initial review was looking for examples of strategic-level assessment incorporating both goal-oriented and impact assessment with a sustainability focus. Only

one example in total was found and the Victorian strategic assessment example is discussed below. No academic literature has yet been found on the Victorian strategic assessment but this search is ongoing.

The Victorian planning system operates under the *Planning and Environment Act 1987*. The Victorian process for the preparation of local government planning schemes (and major amendments to existing schemes) includes a mandatory strategic assessment process to be completed by the local government. This process is outlined in the *Strategic Assessment Guidelines for Preparing and Evaluating Planning Scheme Amendments* [34] referred to from here on as the Guideline. The Guideline lists strategic considerations that must be address by the local government, including:

- Why is an amendment required?
- Does the amendment implement the objectives of planning (under the Act) and address any environmental, social and economic effects?
- Does the amendment comply with all the relevant Minister's directions?
- Does the amendment support or implement the State Planning Policy Framework?
- How does the amendment support or implement the Local Planning Policy Framework and, specifically, the Municipal Strategic Statement?
- Does the amendment make proper use of the Victorian Planning provisions?
- How does the amendment address the views of relevant agencies?
- Does the amendment address the requirements of the Transport Integration Act 2010?
- What impact will the new planning provisions have on the administrative costs of the responsible authority?

Under the second strategic consideration the Guideline requires that the local government carries out an impact assessment. This impact assessment must take the form of a cost-benefit analysis and must be "an evaluation of the costs and benefits to businesses and the community arising from any requirement of the amendment" [34]. The Guideline provides a list of effects that should be considered as part of the cost-benefit analysis, examples of effects include: the health of ecological systems (environmental), effects on future public and private sector investment in the immediate and surrounding areas (economic), and likely effects on community infrastructure (social).

The structure of the Victorian strategic assessment is argued to be highly relevant to the Queensland local government planning context and it is likely to require only minor modification to be fitted into the SPA and QPP context. This paper highlights only one major deficiency, and this may only be noticed when contrasted against the international examples in the following section, that it is a less rigorous analytical framework. This structure may on the positive side be less arduous on planning officers, but on the negative side may not produce as beneficial outcomes. This would need to be the subject of further research and testing. At the time of writing this proposal, requests for feedback on real-life experience under the Victorian system have not yet been answered.

The Guideline does not prescribe consultation on the strategic assessment outside of the general public notification period for planning scheme. However it could be argued that a consultative approach is implied as it requires the local government to have an understanding of and incorporate state agency requirements and community and industry concerns. This approach is similar to consultation prescribed under SPA and would also compliment the Brisbane neighbourhood planning context.

The minimum level of procedural guidance contained within the Guideline should be strongly noted, for example, in respect to how the local government should undertake the impact analysis. If a local government did not have in-house resources that were experienced in cost-benefit analysis, this could then mean additional consultancy expenditure. This is once again an important consideration for any implementation in the Queensland context as a new process should ideally be supported by quality explanatory material and/or tools.

(3.5) European Commission SIA

The European Union (EU) is considered to be a contemporary leader in the development of impact assessment frameworks [12)5)27)]. The European Commission (EC) maintains an RIA system for all policy and legislation of interest to the EU [35]. The EC also maintains an EIA/SEA framework similar to the Australian EPBCA framework and the EC SEA is commonly applied to spatial land use planning (Directive 2001/42/EC). The EU member countries also maintain national RIA frameworks some which are experimenting with separate national sustainability assessment frameworks [13]. The United Kingdom, Irish, Swiss and Belgium systems explicitly reference sustainability but contain no uniform approach in respect to method (e.g. cost-benefit analysis), criteria of assessment (e.g. obligatory SD criteria), consultation, timing, and level of integration between their sustainability assessment and RIA systems [13]. Given the best practice nature of the

EC Impact Assessment (referred to from here on as the EC-SIA) and its bridging of the SEA and RIA traditions it will be reviewed for potential application to the case study.

The EC standard is that all significant EC initiatives, future policies and all EU-level legislation are prepared on the basis of transparent, comprehensive and balanced evidence to aid political decision making [35]. The EC provide a comprehensive guideline (referred to as the ECIAG) which provides detailed guidance on substantive and procedural elements. The EC-SIA process is envisaged to take approximately a year and the overall process, from planning to adoption, is provided Figure 2 below. Figure 2 illustrates that public and expert stakeholder engagement is mandatory at both the planning stage and when drafting the report.

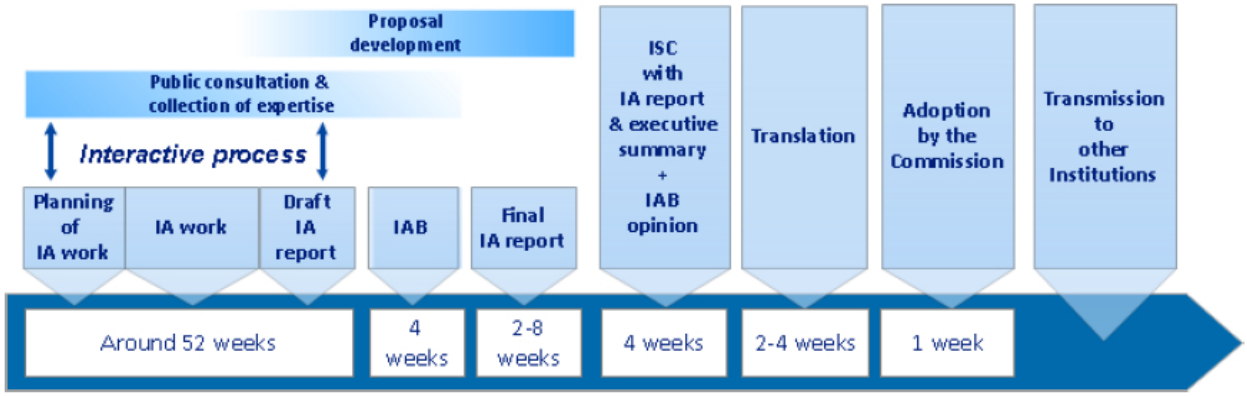


Fig.2 EU-SIA Process [35]

A summary of EC-SIA analytical steps from the ECIAG is provided below:

- problem identification, risk assessment and baseline scenario development,
- definition of the objectives of the proposal and its linkages and likely contribution to governing legislation or policy,
- development of options (including why alternative should not be pursued),
- understanding the causal link between problem, objectives, options and impacts,
- proportional level of qualitative and quantitative impact analysis (including who is affected, across society and time, administrative burdens) depending on scope of the proposal, significance of the identified impacts, and deemed political importance,
- comparison and ranking of options,
- outlining policy monitoring and implementation.

This structure provides a rigorous and evidence-based approach to the development of legislative proposals but further research would need to be undertaken to understand its transference to a specific type of instrument such as a local plan. Another important question to be considered is whether it is too arduous a process for a local plan, a process which might be reserved for the development of complete planning schemes. However it could be argued that quality regulation that produces sustainable outcomes on the ground is highly desirable, even if it means an additional analytical burden.

The EC-SIA framework also gives suggested areas of environmental, economic and social impact against which to analyse options along with indicators and examples of the process as applied to real-life EU assessment examples [35]. These areas of impact and indicators would need to be reviewed for their application to other contexts but they are argued to be a desirable benchmark and baseline. The benefit of the extensive ECIAG with examples is that it provides an education platform for planning officers having to undertake the tasks and this is important to note for potential application in the Queensland context.

While the EC-SIA framework doesn't specify that computer-aided modelling software for impact assessment is mandatory it is highly recommended, and given the sophisticated nature of the analytical framework (particularly if applied to a complex planning situation like drafting a local plan) computer-aided modelling would be almost essential. Indeed since the implementation of the EC-SIA framework the EC has funded decision-support projects such as the SENSOR project - *Sustainability Impact Assessment: Tools for Environmental, Social and Economic Effects of Multi-functional Land Use in European Regions* [36]. The SENSOR project (completed in 2009) was designed to: 1) support the development of a single integrated impact assessment process, and 2) develop modelling tools for the EU regional-scale land use policies [36]. The SENSOR

analytical chain aims to (i) link policy options with land use changes, (ii) link land use changes with environmental, social and economic impacts, and (iii) provide a valuation framework of these impacts in light of sustainable development [10]. SENSOR's main product, the *Sustainability Impact Assessment Tool* (SIAT) is a quantitative multi-modelling tool that undertakes scenario assessment across disciplines, sectors and sustainability dimensions [10].

The EC-SIA and SIAT tool has informed subsequent projects internationally, for example, the EU LUPIS project (*Land Use Policies and Sustainable Development in Developing Countries*) which developed an SIA methodological framework that allows ex-ante assessments of land use policies in African, Asian and Latin American countries [12]. It is useful to utilise the LUPIS method to further illustrate how the EC-SIA might be applied in a real-life local plan drafting process. For example, both the EC-SIA and LUPIS use the OECD DPSIR framework - driving forces, pressure, state, impact and responses [12]. The DPSIR framework could be used in the BCC process to analyse the causal relationships (e.g. between the plan and what the plan can actually affect). In addition, the LUPIS indicator framework is a good benchmark, which identifies SD targets, a generic set of land use functions (e.g. industry, infrastructure, food security, ecosystem production), and scenario specific indicators [12] – refer to Figure 3 below.

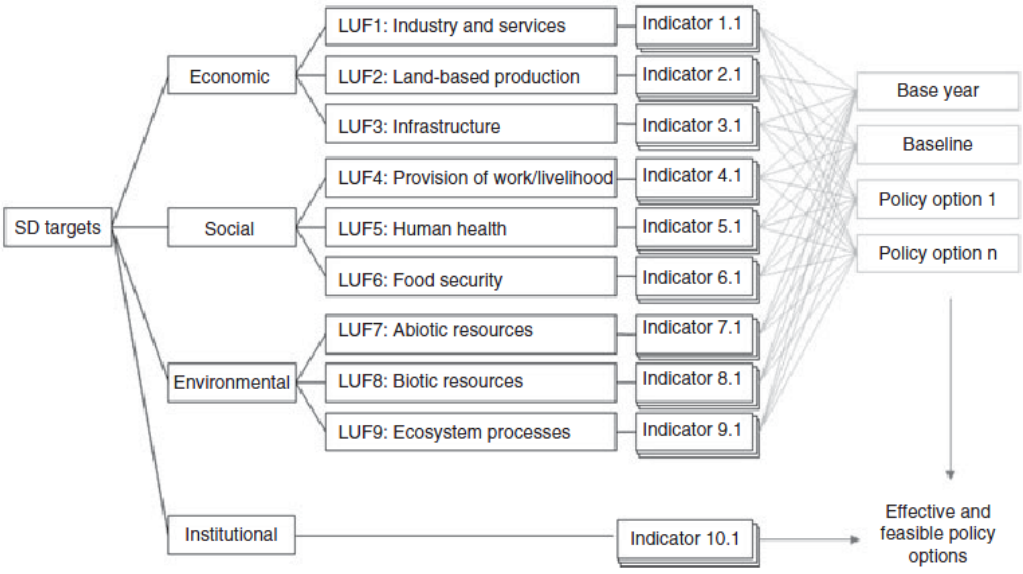


Fig.3 LUPIS Indicator Framework for SIA [12]

The EC-SIA reiterates the importance of identifying and managing trade-offs between economic, environmental and dimensions. As a potential framework for the BCC context the EC-SIA framework and decision support tools such as SIAT have proven their versatility by being adopted and adapted for use in other contexts internationally.

(3.6) SIA comparison

Both the Victorian strategic assessment framework and the EC-SIA would complement the Queensland SPA context and facilitate positive outcomes for the BCC case study. The principles, structure and language of the featured frameworks are relevant and appropriate for the case study. The frameworks would also handle the complex suite of SPA concepts including integrated land use and infrastructure coordination and ecologically sustainable development.

The Victorian strategic assessment and EC-SIA structure combine goal-oriented and impact assessment. The inclusion of impact assessment provides a more meaningful assessment than a simple compliance 'check' against the Brisbane strategic framework and SPA legislation. Both frameworks have requirements for the analysis of short term impacts but also long term impacts on future community states, which are argued to represent the SD requirement to consider inter-generational equity. Further research into SEAs is required to further improve this connection with and facilitation of SD considerations.

The EC-SIA in particular would be well suited to the ethos and high level of stakeholder engagement carried out under the BCC neighbourhood planning process. The Victorian strategic assessment does not have explicit consultation requirements but it would be difficult to demonstrate the required understanding of state and community concerns without a level of engagement.

Where the Victorian strategic assessment and EC-SIA differ markedly is in the depth of analysis required. The Victorian strategic assessment doesn't require the EC-SIA options development, analysis and comparison phase and it also doesn't require the consideration of post-implementation monitoring and evaluation actions. This does reduce the Victorian analytical rigour and may produce a lesser outcome, but it is a pertinent point in time to remind the reader of the difference in regulatory scale. The EU level regulation has the potential to affect vast groups of communities, business and environmental systems where as a Victorian local government planning scheme is minor in comparison. Despite this the Victorian Guideline does ask if the amendment is supported by or as a result of a strategic study or report – so it does not preclude a local government from undertaking more detailed options identification and assessment stage if the scale of the proposal requires it.

The implementation of both frameworks would require training and support tools for the planning officers involved in SIA. The EC-SIA provides assistance through extensive explanatory material and through EC-SIA officers available to support those preparing the assessments. While the Victorian Guideline is a simpler approach, if a local government did not have experienced in-house resources that could undertake a robust cost-benefit impact analysis this would then require consultancy expenditure which could start to offset the benefits. This is another important consideration for any implementation in the Queensland context as a new SIA process should ideally be supported by explanatory material and/or tools such as in the EC-SIA situation.

Both the EC-SIA and Victorian strategic assessment frameworks have potential for inclusion in the Queensland local government planning scheme development process. The Victorian SIA framework may at first seem more appropriate, particularly given the scale of local planning processes, but better regulatory and implementation outcomes may eventuate from the EC-SIA. Further research is required and indeed proposed under a Queensland University of Technology research thesis. Ideally both frameworks would benefit from a real-life trial in the BCC neighbourhood planning process. If this cannot be achieved it is then proposed to gain feedback from a panel of experts (e.g. planning academics and/or professional planners) through survey or interview. Further research is also required on the areas of impact recommended by both frameworks to ensure an easier transition to the Queensland context. And finally research is required on the neighbourhood planning process itself to understand, in the Queensland context, the linkages between policy and land use changes, and land use changes with environmental, social and economic impacts.

4. CONCLUSION

In conclusion, RIA is a long standing governance practice internationally and within the Australian national and state government regulatory instrument development process. With the increasing responsibilities of local governments and their growing impacts in land use and infrastructure policy, planning and delivery activities, it is argued to be timely to extend RIA to the local government level. To be of maximum long-term benefit to the community, this regulatory assessment should be a sustainable impact assessment that incorporates UNCED sustainable development considerations.

Well designed, integrated land use and infrastructure planning instruments which consider the immediate and long-term economic, social and environmental impacts are key components in achieving sustainable urban development and a resilient community. Planning schemes must not only articulate the community's sustainability goals but be designed and tested to facilitate sustainable outcomes in their jurisdiction. While technically and administratively challenging, sustainability impact assessments can assist in achieving this outcome by enabling planners to thoroughly test their plans before presentation to the political level for ultimate decision making and adoption.

This paper has provided a brief insight into RIA frameworks with a sustainability focus currently in place in the European Union and Australia. The European Commission impact assessment framework contains a rigorous analytical methodology and is highly focused on sustainable development. In the Australian context a sole example of RIA was found in the Victorian planning system and while sound requires much less analysis than its European counterpart. However the European Commission framework would place great demands on planning officers and systems and therefore both frameworks would have advantages and challenges in implementation.

Both the European and Victorian assessment frameworks require further research and trial but it is argued that these two examples could be readily adapted to the Queensland context or present an excellent starting point for development of a Queensland specific SIA framework.

APPENDICES

Preplanning and project initiation

- detailed investigation of plan area and technical studies commence
- review existing studies, community feedback and strategic plans
- collate preliminary information from across Council and the Queensland Government.

Vision and options

- stakeholder engagement, e.g. Community Planning Team meetings, commences to determine issues, priorities and to consider planning options.

Draft strategy

- an early opportunity for the greater community to comment on a desirable development pattern for an area and other recommendations from targeted community feedback and technical studies.

Draft plan

- Council prepares the draft plan considering comments received on the draft strategy. This draft must be endorsed by elected representatives of Council before being considered by the Queensland Government.

First State Interest Review

- the first formal opportunity for the Queensland Government to review the draft plan, identify Queensland Government interests and endorse the draft plan for public notification. Changes to the draft plan may be required in response to this review.

Public notification of draft plan

- a formal opportunity for the community to comment on the draft plan
- collation of a submission report and consideration of all properly made submissions received (a response will be sent to all submitters)
- amend the plan accordingly.

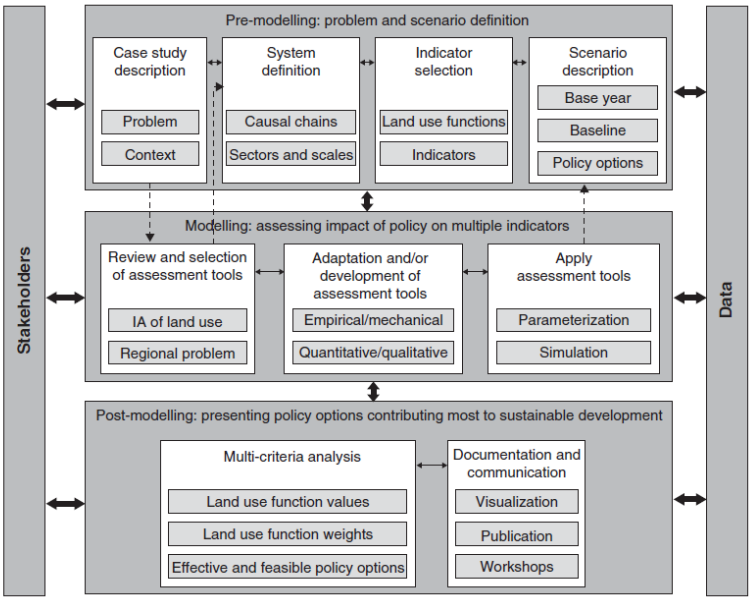
Second State Interest Review

- the second and final formal opportunity for the Queensland Government to review the draft plan and endorse it for Council adoption. Changes to the draft plan may be required in response to this review.

Finalisation and adoption of neighbourhood plan

- the draft plan is endorsed by elected representatives of Council
- the intent to adopt the draft plan appears in the Government Gazette
- the neighbourhood plan is adopted (becomes effective from a set date) and becomes part of Council's Planning Scheme, *City Plan 2000*, and will be used to assess future development.

APPENDIX 1 BCC NEIGHBOURHOOD PLANNING PROCESS [37)]



APPENDIX 2 LUPIS SIA METHOD AND PROCEDURE [12)]

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